MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
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SRM Number: 3185
MSDS Number: 3185
SRM Name: Nitrate Anion Standard Solution
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Nitrate Anion Standard Solution

Description: This material consists of five 10 mL sealed borosilicate glass ampoules of a single component solution at a nominal concentration of 1000 mg/kg nitrate dissolved in filtered (0.22 μm) 18 MΩ water. High purity sodium nitrate was used in the preparation.

Other Designations: **Sodium Nitrate** [nitratine; sodium niter; chile saltpeter; cubic niter; sodium (I) nitrate; sodium (+1) nitrate; nitric acid, sodium salt; niter; nitric acid, sodium salt (1:1); soda niter]

Name	Chemical Formula	CAS Registry Number
Sodium Nitrate	$NaNO_3$	7631-99-4

DOT Classification: Solution is not regulated by DOT.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration	Exposure Limits and Toxicity Data
Sodium Nitrate	~1000 mg/kg	No occupational limits established
		Human, Woman, Oral TD_{Lo}: 14 mg/kg
		Human, Child, Oral LD_{Lo}: 22 500 μg/kg
		Rat, Oral LD_{50}: 1267 mg/kg
		Rat, Intraperitoneal LD: >181 mg/kg
		Mouse, Intravenous LD_{50}: 175 mg/kg
		Rat, Continuous Oral TD_{Lo}: 118 gm/kg/39 weeks

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Sodium Nitrate	
Appearance and Odor: colorless to white crystals or powder; no odor	**Vapor Pressure:** not applicable
Relative Molecular Weight: 84.99	**Vapor Density:** not applicable
Specific Gravity (Water = 1): 2.261	**pH:** neutral in solution
Boiling Point: not applicable	**Water Solubility:** 92.1 % @ 20 °C
Melting Point: 307 °C	**Solvent Solubility:** soluble in alcohol, methanol, ammonia; slightly soluble in glycerol; very slightly soluble in acetone

NOTE: The physical and chemical data provided are for the pure crystalline form of sodium nitrate.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable **Method Used:** Not Applicable **Autoignition Temperature:** Not Applicable

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable
LOWER: Not Applicable

Unusual Fire and Explosion Hazards: This material is a negligible fire hazard.

Extinguishing Media: Water; Do **NOT** use dry chemicals, carbon dioxide or halogenated extinguishing agents.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** _____ **Unstable**

Conditions to Avoid: None reported

Incompatibility (Materials to Avoid): Sodium nitrate is incompatible with acids, metal oxides, metals, metal salts, combustible materials, cyanides, and reducing agents.

Hazardous Decomposition or Byproducts: Thermal decomposition of sodium nitrate can produce oxides of nitrogen and sodium.

Hazardous Polymerization: ____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Health Hazards (Acute and Chronic): Sodium Nitrate may be irritating on contact with eyes, skin, and mucous membranes. May be harmful if swallowed. Ingestion may cause abdominal spasms, faintness, and muscular spasms. Nitrates may also produce gastrointestinal irritation, bloody diarrhea, hematuria, catharsis, diuresis, albuminuria, and oliguria.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: If sodium nitrate dust is inhaled, move the victim to fresh air. If breathing becomes difficult, call a physician. Give artificial respiration if the victim is not breathing, and get immediate medical attention.

Skin Contact: Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Obtain medical attention, if needed.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes. Obtain immediate medical assistance.

Ingestion: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Obtain medical attention immediately.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Avoid contact with combustible materials. Absorb spilled liquid with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Store in accordance to the Certificate of Analysis for SRM 3185. Keep material separated from incompatible substances. Handle in accordance with all current regulations and standards.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Sodium Nitrate*, 19 March 2003.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was carefully prepared, using current references; however, NIST does not certify the data on the MSDS. The certified value for this material is given in the NIST Certificate of Analysis.